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THE VETERINARY JOURNAL

A MONTHLY REVIEW OF VETERINARY SCIENCE

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The Veterinary Journal.

JULY, 1935.

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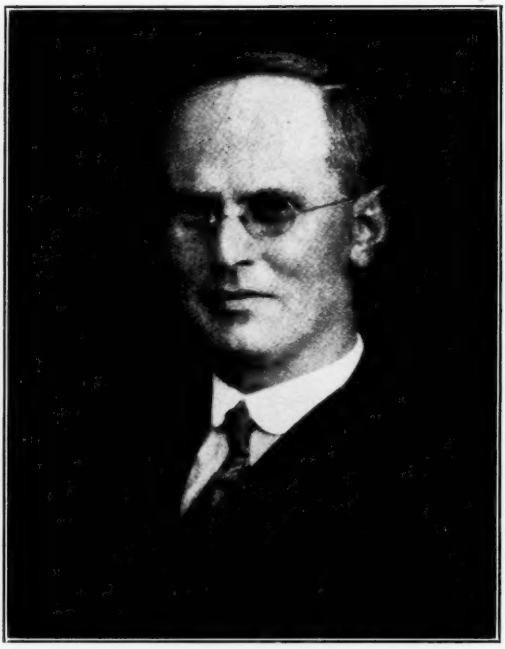

Principal CRAIG, M.A., M.R.C.V.S.
President of the National Veterinary Medical Association.

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JULY, 1935.

PRINCIPAL CRAIG, M.A., M.R.C.V.S.

THE year 1935 will always be remembered by Professor Craig, as it is in this year that he not only presides over the duties of the National Veterinary Medical Association—the largest association of its kind in Great Britain—but now comes the news of his election to the Liverpool University Wm. Prescott Chair of the Care of Animals (Causation and Prevention of Disease) in the place of the late Professor Gaiger, whose recent death was so much deplored by his colleagues and co-workers.

Principal Craig, as a former President of the Royal College of Veterinary Surgeons and Principal of the Veterinary College of Ireland, is too well known to necessitate any description to a body of veterinarians either at home or abroad. Popular with his students and colleagues, it will be their loss that he leaves Dublin; but in so far as the profession is concerned the University facilities at Liverpool will be at his disposal, and his opportunities for original work will be at least as plentiful as those in Ireland.

Editorial

THE STUDENT AND COMPULSORY PUPILAGE

Now that some of the students have at last reached the fifth year of their studies, the regulations put forward by the Council of the Royal College of Veterinary Surgeons in regard to compulsory pupilage will now come into force; and, for the future, a student must produce a clinical notebook—signed by the practitioner with whom he has been as pupil—which is not only to be submitted to the College teacher of his subject, but also during the Examination Final part to the Examiners if asked for. A student must also produce evidence of having assisted at the parturition of a minimum of six cases in the larger animals—and this addition to the bye-laws of the Royal College of Veterinary Surgeons will be rigorously enforced.

It is not only for experience in this side of the practitioner's life that this regulation is of benefit to the student, but he also learns something of the routine and management of clients—the so-called "tact of practice"—which

is as much the secret of success in the building-up and retention of a large *clientèle* as the skilful treatment of the patients. The importance of this to the man who wishes to become a practitioner cannot be stressed too much, as we must not forget that our patients do not come to us voluntarily, but are always " brought "—and their destination in this respect must always remain at the selection of the owner. Herein often lies the explanation of the successful empiric. If in a district a qualified man, however clever he may be at the actual diagnosis and treatment of his patient, has an uncouth, abrupt or casual manner—to mention only these often obvious faults—and the unqualified empiric has a gentlemanly manner with plenty of tact (even if obviously with less actual veterinary knowledge) the result will soon be seen, and the nicer mannered man will have the busier *clientèle*.

An observant student will soon see all this, and to absorb it properly he must begin early whilst he is in the *receptive* age. *This is very important, for the older man who has frittered away his earlier A to B and B to C vacations has lost ground which can rarely be made up.*

The College students of fifty years ago were drawn principally from the sons of veterinary surgeons, farmers, breeders of stock, horse-dealers and such like, and entered the profession because they had been brought up in what was then its atmosphere; and the majority were country bred, could ride, and knew something from the practical point of view about the management of stock. With the advent of the higher matriculation standard the type changed, and the town boy who was clever with his books and an aspirant for theoretical and scientific knowledge came along, knowing more about his household pet, the dog, than any other animal, but precious little of the true veterinary side. Still, he wished to know and was willing to learn, and, if possessing a sensible, observant parent or guardian, he was sent to a farm—or with a job-master—where he was taught to groom, feed, and ride horses during his first and second vacations; and then as a pupil with a Veterinary Surgeon between B and C, and C and D; thus acquiring some " animal in health " foundation and fulfilling the wise purpose for which the Examination Committee of the Council of the Royal College of Veterinary Surgeons arrange the times of the College vacations, *i.e.*, the months in which parturition is taking place amongst farm stock.

The student who was wise adopted this guidance and became reasonably proficient, being gladly accepted on his return for a second or third vacation by the practitioner with whom he had been as a pupil. Such a man can unobtrusively make himself so useful as to be much sought after; especially in these days when a qualified assistant can not only command a high salary, but often, even with this, is almost unobtainable.

It is now for the practitioner to do his part, and to place his name on the Extra Mural List of practitioner teachers who are willing to do their part in this practical training. This arrangement can be made of very great mutual benefit, provided the right men are brought together and are willing each to do, and play, the part of what must naturally, as in all other arrangements of this kind, imply some " give and take," especially as the student pays a fee for tuition.

It seems a pity from many points of view that the former pupilage system, by which many of us were legally articled to serve every College vacation with a practitioner, has been abolished; but legally bound pupilage, like the apprenticeship which used to be so useful for the learning of trade, appears to have gone out of fashion in our profession as well as in that of others. There are many of us who, though perhaps we may be considered old-fashioned, would like to see this return; for the boy who went with a good veterinary Surgeon in busy practice when he was still of *the receptive age* learnt much of men and animals which he never forgot and which was of the greatest benefit to him in his future career, whether this was in general practice or a whole-time Inspectorship.

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Congress Biographies

MR. J. EWING JOHNSTON, M.B.E., J.P., M.R.C.V.S.

No mention of Belfast in connection with veterinary matters can possibly be made without the inclusion of the name of Mr. J. Ewing Johnston—whose practice is amongst the largest and best in Northern Ireland. Mr. Johnston has been connected with Belfast for many years, having originally come to that city as assistant (continuing as partner) to the late Mr. Ross, who had in his turn succeeded Mr. J. J. Dunlop, the well-known inventor of the Dunlop tyre. In fact, at the present time there is in the establishment, carefully preserved, the small room in which Mr. Dunlop originally worked out the invention of this article which has revolutionised not only the motor, but also the horse-transport of the world. The premises were originally termed " The Belfast Horse Bazaar," as they are very commodious and at one time were the centre of the horsey life of this northern capital. At the present moment the Veterinary Infirmary and Shoeing Forge will bear comparison with that of any private practitioner in any part of the world. It is a busy place, and the youth who is fortunate enough to be taken as a pupil to Mr. Ewing Johnston has indeed an opportunity which others might envy.

LT.-COL. T. DUNLOP YOUNG, O.B.E., M.R.C.V.S., D.V.S.M., F.R.San.Inst.

To the College student the name of Colonel Dunlop Young is probably best known on account of the recent service which he had done for the profession (student and graduate alike) in re-editing the English edition of that standard text-book, Ostertag's " Handbook of Meat Inspection." In this specialised branch of veterinary work there is no greater authority in Great Britain, and this has been recognised not only by the City of London Corporation authorities, whose veterinary adviser Colonel Young was for many years, and the Royal Sanitary Institute, for whose Diploma he was for many years the Chief Veterinary Examiner, but also by the National Federation of Meat Traders, the Australian, New Zealand, Argentine, and a host of other Governments, whose advisory work (since his retirement to end his days quietly!) makes him a busier man than ever he was when a prominent City official. During the Great War Colonel Young " did his bit," and eventually commanded a large Reception Hospital in France, receiving the O.B.E. as a reward for good work done. Always ready to disseminate the knowledge of his large and practical experience, one always knows that when Colonel Young's name is announced as a speaker there will be a quiet audience of interested listeners.

PROFESSOR J. BASIL BUXTON, M.A., F.R.C.V.S., D.V.H.

No National Veterinary Congress would be complete without Professor Buxton, and, as might be expected, when the time came to elect a President for the Experimental Pathology Section, the selection of Professor Buxton's name was a foregone

conclusion. His former services as President not only of the National Veterinary Association, but also of the Council of the Royal College of Veterinary Surgeons, have made his name known to every member of the profession—in fact a "household word"—and no man has given more loyal service to his colleagues and to the profession to which he has devoted some quarter of a century of his life.

MAJOR WILLIAM BRENNAN DE VINE, M.C., F.R.C.V.S., D.V.S.M.

Chief Veterinary Officer, City of Birmingham.

MAJOR DE VINE was born at St. Johns, Newfoundland, in 1881, qualifying at Dublin Veterinary College in 1903. After having been in general practice for three years he took a post-graduate course at the Royal Veterinary College in London, and then entered the Public Health Service as assistant to the late Mr. John Malcolm, of Birmingham; succeeding him in 1920 as Chief Veterinary Officer. In 1910, Major De Vine took the D.V.S.M. Diploma at the Victoria University. Amongst his other honours he was elected a Fellow of the Worshipful Company of Farriers and a Member of their Executive Committee, being also one of their Examiners. For twenty-three years Major De Vine has acted as Veterinary Inspector to the Royal Agricultural Society's Show, being selected by the Council some twelve years ago as the Chief of this Department. When war broke out Major De. Vine joined up at once and was with the Expeditionary Force in France in September, 1914. His War service included mentions in despatches in 1916 and 1917, the Military Cross and the French Order of Chevalier du Mérite Agricole, Military Division. He retired with the rank of Major in 1917. His contributions to veterinary literature have been numerous and almost entirely connected with subjects of important public health interest, particularly those relating to milk and meat inspection.

COL. WILLIAM A. WOOD, C.B.E., M.A., late R.A.V.C.

COLONEL WOOD graduated from the Royal Veterinary College in 1891, where, as a student, he was very popular amongst his colleagues for his proficiency in Rugby football. Deciding to join the Service, he took a commission in the Army Veterinary Department in 1897, and his record includes services in India and Somaliland. During the Great War he occupied the positions of A.D.V.S. to the Lahore Division in France and Mesopotamia, being awarded the C.B.E. for his services. After retiring from the Army, Colonel Wood joined the staff of the School of Agriculture at Cambridge, being awarded the Honorary M.A. of the University in 1921. He is now a member of the staff of the Institute of Animal Pathology, working particularly for the benefit of agriculture on the side of parasitology.

PROFESSOR T. G. BROWNE, M.R.C.V.S.

PROBABLY no man is more popular as a teacher of anatomy than the subject of our photograph. In addition to obtaining honours in his professional examination,

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his college career gave him no less than nine medals for his class subjects; and immediately upon qualifying he was appointed Demonstrator in Pathology and Anatomy and Research Assistant to the late Professor Mettam, who was at that time the Principal of the College. In 1915 the Chair of Anatomy became vacant, and Professor Browne was appointed, having occupied that position ever since. His contributions to veterinary literature are well known, and his other positions of importance have at various times included Examinerships for the University of Edinburgh, the National University of Ireland, and the Queen's University, Belfast.

MAJOR C. H. S. TOWNSEND, O.B.E., M.C., F.R.C.V.S.

MAJOR TOWNSEND had the advantage at the beginning of his professional career of being the son of a much respected and well-known country practitioner where hard work was the order of the day. Immediately after qualifying in London in 1914, he joined the Army Veterinary Corps, and was present in France until 1918, being decorated with the Military Cross. He was then transferred to India, where for services in Waziristan in 1920 he was awarded the Order of the British Empire. Major Townsend is particularly known to his professional colleagues as a skilful operator and a specialist in certain surgical operations such as those of roaring, cryptorchidy, and Professor Forssell's operation for crib biting. A genial officer, intensely popular with both military and civilian colleagues, he is at the present moment the Veterinary Officer in charge of the large Army Equitation School at Weedon.

MR. P. F. DOLAN, M.R.C.V.S., D.V.S.M.

MR. DOLAN, who is the Chief Veterinary Inspector for the Corporation of Dublin, graduated from the Dublin College in 1911, and after a short period in general practice entered the Dublin Corporation's service in 1913, becoming the Chief Veterinary Inspector in 1922. In 1923 he was the first member of the profession in Ireland to obtain the Diploma in Veterinary State Medicine, and was elected President to the Veterinary Medical Association of Ireland in 1925. Mr. Dolan is now in close touch with his English colleagues, as he has been selected as one of the representatives of the Irish Free State on the Council of the Royal College of Veterinary Surgeons. His contributions to veterinary literature include many valuable articles on meat inspection and the milk supply.

CAPT. A. McLEAN, M.R.C.V.S., D.V.H.

THE Dublin Veterinary College has reason to be proud of the rapid progress which Capt. Alec McLean, one of its graduates, has made in the world of veterinary science. He graduated in 1919 with numerous silver medals to his credit, and took the D.V.H. at Liverpool University, being afterwards elected as one of the Members of the staff of the Veterinary School, and remaining with them for about three years. He then returned to his father's practice at Belfast, and in 1931 was appointed Chief Veterinarian for that city. The duties of his office include

the management of the very up-to-date abattoir, and to this has since been added the position of Veterinary Officer under the Agricultural Produce Act of Northern Ireland and the Inspectorship under the Milk and Milk Products Act (1935) of Northern Ireland.

MR. FRED DALY, M.R.C.V.S.

MR. FRED DALY was born at Montreal, Canada, and qualified from the Dublin College in 1914. His whole life has been spent in general practice, and the public positions which he occupies are connected with the Dublin County Council and the Board of Health. In 1934 he was elected the President of the Veterinary Medical Association of Ireland.

MR. JOHN KERNOHAN, M.R.C.V.S.

MR. JOHN KERNOHAN is well known to his Irish colleagues as a practitioner whose opinion is frequently requisitioned as a consultant in connection with matters of urgency or importance, chiefly connected with the Irish hunter and horses. His services are much sought after by a large sporting *clientèle*, and for many years past he has been appointed Judge at numerous Irish shows in the North of Ireland and Scotland.

CAPT. W. G. WRAGG, M.R.C.V.S.

THE handling of the financial side of the affairs of any large body of men must at times need considerable tact, for refusals of requests by its members do not tend to popularise the Treasurer; but no one has ever questioned Capt. Wragg's decision, and this speaks well for his management of a difficult job. As Chief Superintending Inspector of the Diseases of Animals Division of the Ministry of Agriculture, Capt. Wragg leads, especially at times, an exceedingly busy and strenuous life ; and it is exceedingly generous of him to give up his time to a post which is honorary and for which he can at most expect only thanks.

CAPT. JAMES ROLAND RIDER, M.R.C.V.S.

ALTHOUGH the National Veterinary Association, like others of its kind, possesses a staff of paid officials—of whom not the least influential in regard to work done must, of necessity, be the Secretary—there must always be an Honorary Staff to co-operate with the President and Council in all movements of importance; and amongst these Capt. James Rider occupies the Honorary Secretaryship.

The duties of such a post are often arduous and of a very responsible nature, but with a man of earnest and well-known reputation for organisation and good management the members can rest assured that all is well. The fact that he has the confidence of his fellow men in the profession is evidenced by the fact that the Royal College of Veterinary Surgeons have selected Capt. Rider as a Member of the Board of Examiners, and for some years he has acted as Hon. Secretary and Treasurer of the North of England Division of the Veterinary Medical Association.

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His war record included service in the Scottish Horse Yeomanry, from which he retired in 1916 as a Captain to complete his Veterinary course at the Royal (Dick) Veterinary College in 1918.

MR. F. KNIGHT.

THE success of any council or committee always depends more upon the Secretary than upon any other official, and the continued success of the National Veterinary Congresses—and, indeed, of the National Veterinary Medical Association itself—bears this out completely; for the recent Congresses have all been successes, and the credit for this must be given largely to the careful organisation and management of Mr. Knight. Commencing his veterinary career in the office of a very good tutor—Mr. Fred. Bullock, the ever-popular Secretary of the Royal College of Veterinary Surgeons—Mr. Knight has been an apt pupil, and the friendly collaboration between the two ruling bodies of our profession presents a unity of action which is not only a great asset, but a veritable pillar of strength.

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General Articles

THE BELFAST CORPORATION ABATTOIR.

By A. McLEAN, M.R.C.V.S., D.V.H.
City Veterinarian, Belfast.

To go back to the earlier times to recall the conditions under which animals were slaughtered for human food is a retrospect which is better left buried in antiquity, when the spectacle of a beast being slaughtered was one of the local " sights " which occurred in old buildings attached to butchers' shops, where in the majority of cases neither drainage nor sanitary conditions existed—a state of affairs often inseparable from cruelty and uncleanliness.

It is unnecessary to further consider this unsatisfactory state of affairs, which existed prior to the opening of Belfast's first public abattoir ; it is sufficient to say the City Fathers realised these deficiencies, and in the year 1869 Belfast saw the dawn of a new era, as far as meat inspection was concerned, when her first public abattoir was built in McAuley Street at a cost of £3,230, on the Paris (La Vilette) plan, this being at that time considered the finest abattoir in Europe. The year 1889 saw further extension to the abattoir at a cost of £3,000, the accommodation having become so restricted. The staff of the old abattoir so far did not include a veterinarian, the onerous duties of meat inspector were in the hands of the lay community. In 1907 this defect was remedied, and the late Mr. J. Jordan, M.R.C.V.S., took over the duties as Belfast's first city veterinarian.

There is no doubt the McAuley Street abattoir served its purpose; but in a city like Belfast, which was growing so rapidly, the abattoir soon became out of date, the buildings having reached their limit ; and the march of sanitary science made it imperative that a new abattoir commensurable with the importance of the city should be erected without further delay, and no one realised this more than the late Dr. Henry O'Neill, then Chairman of the Markets Committee. He saw public health administration, especially meat inspection, from an angle that made his colleagues often question his judgment, and no scheme under the ægis of the city fathers was subject to more discussion than the doctor's attempt to build a new abattoir ; and as a result of his extreme views he found himself bearing the epithet " Health O'Neill." In 1913 he saw his effort for further reform bearing good work, and in establishing our present abattoir Dr. O'Neill wrote history in the annals of the corporation that will never be forgotten.

It took the doctor seventeen years before he succeeded with his scheme for the new abattoir: it was only a man of his type of determination to see things carried out for the betterment of mankind who could have gained his point as he did. As an indication of the enormous increase of business at the abattoir, it may be stated that the number of animals of all kinds slaughtered during the

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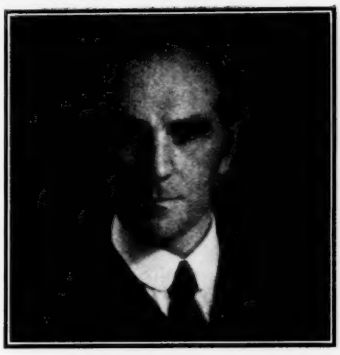
Lt.-Col. T. Dunlop Young, O.B.E., M.R.C.V.S., D.V.S.M., F.R.San. Inst., formerly Chief Veterinary Officer to the City of London.



Major William Brennan De Vine, M.C., F.R.C.V.S., D.V.S.M., F.R.S.I., Chief Veterinary Officer to the City of Birmingham.

Professor A. Gofton, F.R.C.V.S., Chief Veterinary Officer to the City of Edinburgh.

Professor T. G. Browne, M.R.C.V.S., Veterinary College of Ireland, Dublin.

Capt. Bradley, M.R.C.V.S., Veterinary Surgeon to the Ulster Society's Hospital for Animals of the Poor.

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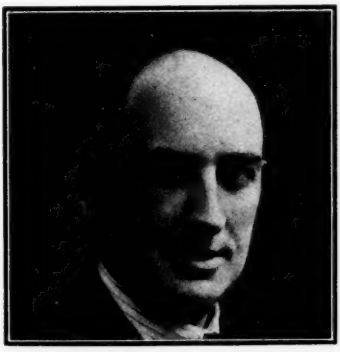
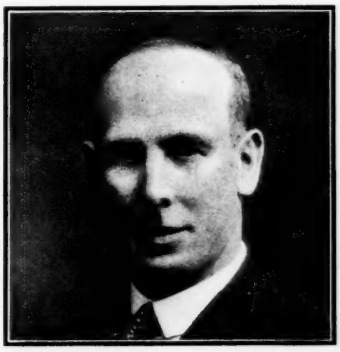
Colonel WILLIAM A. WOOD, C.B.E., M.A., (late R.A.V.C.)., Veterinary Parasitologist, Institute of Animal Pathology, Cambridge.

Major CLARENCE H. S. TOWNSEND, O.B.E., M.C., F.R.C.V.S, Royal Army Veterinary Corps.

Mr. E. L. TAYLOR, B.V.Sc., M.R.C.V.S., D.V.H., Ministry of Agriculture, Weybridge.



Mr. FRED DALY, M.R.C.V.S., Veterinary Inspector of the County of Dublin Board of Agriculture.



Mr. P. F. DOLAN, M.R.C.V.S., D.V.S.M., Chief Veterinary Inspector, City of Dublin.

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Capt. A. McLean, M.R.C.V.S., D.V.H., City Veterinarian, Belfast.

Mr. John Kernohan, M.R.C.V.S., Vice-President, Veterinary Medicine and Surgery Section.

Mr. J. Ewing Johnston, M.B.E., J.P., M.R.C.V.S., President of the Veterinary Medicine and Surgery Section.

Capt. James Roland Rider, M.R.C.V.S., Honorary Secretary of the National Veterinary Association.

Capt. W. G. Wragg, M.R.C.V.S., Treasurer of the National Veterinary Association.

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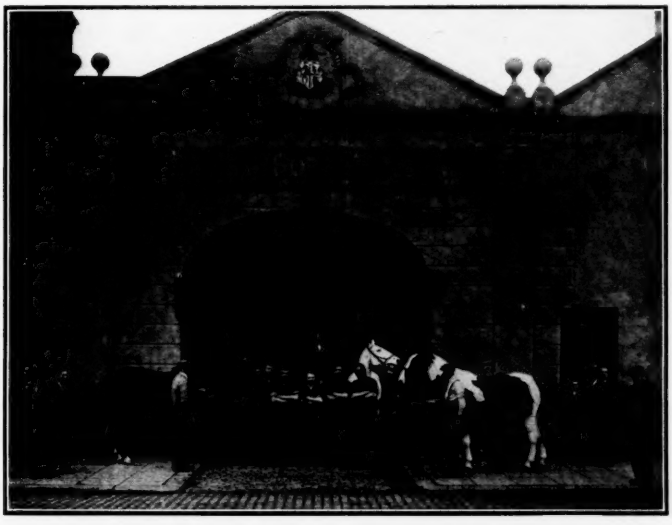
The Ulster Society's Hospital for Animals of the Poor,
Whiteabbey, Belfast.



Entrance to Mr. Ewing Johnston's Veterinary Infirmary, Belfast.

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year 1933 was 167,111, as compared with 1,050 slaughtered in 1870, the year the first public abattoir was opened.

The Meat Inspection Department is under the supervision of the City Veterinarian, who is supported by five officers who hold the Meat Inspection Certificate of the Royal Sanitary Institute. These officials act as detention officers, and are always present during the working hours of the abattoir, and inspect every carcase and organs immediately the animal is slaughtered. If they detect any abnormality they detain the carcase and organs and have them conveyed to the Detention Department, where the City Veterinarian subjects the carcase to a more thorough examination in order to determine if the disease present is of such a nature or extent as to warrant him seizing the whole carcase, or whether it might be possible for him to pass it after removal of the diseased parts. This involves a considerable amount of microscopical work in the laboratory attached to the Veterinarian's office. Having a laboratory so attached is a great convenience, as we are in a position to give a rapid diagnosis and not hold up the trade, which would happen if we were forced to send specimens outside for diagnosis in doubtful cases.

All carcases and organs which have been seized are immediately removed to a department set aside for the purpose, where the owner is given an opportunity, if he desires, of further inspection of his property. The seizures are then taken before the Justices of the Peace, under the surveillance of one of the meat inspectors, who, in accordance with the provisions of the Public Health Act, applies for an order for their destruction. When this order has been granted the condemned carcases and organs are destroyed in the digestors at the abattoir, and the valuable by-products which result sold by tender. According to the Meat Bye-Laws (Sec. 2) all meat slaughtered outside the city boundary must come to the abattoir between the hours of 8 a.m. and 10 a.m. for inspection. To facilitate the trade, a special depôt is provided, and during the year some thousands of carcases are presented for inspection.

When meat leaves the abattoir for the shops it is still under supervision. The shops are visited regularly by the food inspectors to see that everything is in perfect order, and it can be said without fear of contradiction that as a result of these methods of inspection—"individual and detective"—a person may purchase meat from any butcher's shop in the city and feel certain that it is sound.

The abattoir is situated in Stewart Street, and covers an area of about four acres. It is within easy access to the cattle markets, sale yards and railway termini. It is designed so that the slaughter of cattle, sheep and pigs is carried out in three different departments. The lairages are quite convenient to the killing booths, yet the animals cannot see their fellows being slaughtered. The cooling halls are situated quite close to the slaughter halls, and all carcases can be easily conveyed there by means of an overhead rail system. The cattle slaughter hall is designed somewhat on the lines suggested in the report of the Admiralty Committee on the Humane Slaughtering of Animals, in order to continue as far

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as possible the advantages of the separate and open hall system, to overcome the objections to both, and to economise space. The open hall is ideal for inspection and cleanliness, but from the point of view of humanity cannot compare with small separate slaughter-rooms, where beasts are killed and dressed one at a time, and the room cleaned down after each killing.

In the sheep department there is a separate building for sheep lairage which will accommodate 1,200 sheep, a sheep slaughter hall containing 36 killing stools, with six adjacent pens for sheep to be immediately killed, and a sheep-hanging hall fitted with hanging rails and hooks to accommodate 700 carcases. A new sheep unit is in the course of erection capable of handling 1,000 carcases a day with mess rooms and butchers' quarters attached.

In the pig department there is a lairage with accommodation for 200 pigs, a slaughter-hall with four stunning pens, four scalding tanks, and four scutching tables, and a hanging hall which will accommodate 250 carcases.

To make the operation of killing as cleanly as possible, a stomach-cleaning department is provided adjacent to and in direct communication with the tripery. The department consists of two floors, the ground floor being a stand for carts to remove the manure, which is discharged through a chute from the upper floor where the stomachs are slit and cleaned. The stomachs, after cleaning, are delivered direct to the receiving tables in the tripery by inclined galvanized iron chutes. The chill rooms are situated in a central position relative to the various departments, and provide accommodation for about 15 per cent. of the total capacity of the hanging halls for cattle, sheep and pigs. All animals slaughtered at the abattoirs are stunned prior to bleeding (with the exception of those killed for the Jewish community). In the case of cattle the Cash captive-bolt pistol is used, but for sheep, pigs, goats and calves the pistol has been replaced by the electrolethaler.

NORTHERN IRELAND VETERINARY HOSPITAL FOR ANIMALS OF THE POOR.

THE Members of the Veterinary Congress visiting Belfast must not miss the opportunity to visit the premises of the new Veterinary Hospital for Animals of Poor People, which was ceremoniously and officially opened by Viscount Craigavon, Prime Minister of Northern Ireland, in 1932. The hospital, which is situated at Edenmore, Whiteabbey, is one of the latest of its kind, and is under the control of a committee, with Capt. James A. Bradley, M.R.C.V.S., as the veterinary adviser.

The undermentioned account of the opening ceremony, at a recent Garden Fête held in the spacious grounds, is taken from the *Northern Whig*, and gives an idea of the importance of the undertaking and the support given by our professional brethren in Belfast to this humane scheme for the sick animals of the poor:—

"The need for greater financial support for the Veterinary Hospital at Edenmore, Whiteabbey, was emphasised recently at a garden fête in the hospital grounds.

Mr. Thomas Richardson, D.L., who presided, said at present they had a deficit of £217. Recently it had been assessed that there was between £35 and £40 loss a month. The work, he said, could not be continued with such a loss, and he made a strong appeal for more assistance.

Surgeon's Report.

"Captain James A. Bradley, M.R.C.V.S., resident veterinary surgeon, presented the interim report, which showed that there had been an increase in the number of animals, the total to June 30th amounting to 4,050, as compared with 2,483 up to the corresponding period last year. All types and conditions of animals are accepted and cared for, and although primarily intended for the treatment of animals of the poor, patronage by the general public would be highly acceptable. 'As a hospital for sick animals,' said Mr. Bradley, 'we have the best equipped establishment in the country, and have recently been enabled to add an X-ray apparatus through the generosity of an anonymous donor. The electrical horse-clipper and violet rays continue to be of great use. The erection of an isolation ward for infectious cases had been made possible during the year by the proceeds of a dance held by the Tailwaggers' Club of Ireland. This is the only hospital receiving contagious cases such as distemper in dogs, and this has won for it the patronage of local veterinary surgeons. The boarding of cats and dogs is an ever-increasing part of the work. Every care and attention is given to the animals, and when the end comes to the pets' comparatively short lives there is a cemetery attached to the hospital where they may be buried. The grounds of the hospital have been made a bird sanctuary under the Northern Ireland Act of 1931. Part of the premises are available for dances, bridge drives, receptions, etc."

A Happy Thought.

"The Lord Mayor of Belfast, Sir Crawford McCullagh, Bart. (supported by the Earl of Antrim, the Very Reverend the Dean of Belfast, Sir W. J. Allen, D.S.O., M.P., Mrs. W. R. Young, J.P., and a large assembly of notable animal lovers), declaring the fête open, said that 'the purchase of this fine estate—Edenmore—was a happy thought of the Committee of Management. It is to their credit that they have developed it so successfully, and they are deserving of public support, financially and otherwise.'

"He observed from the annual report that the work of the hospital was increasing year by year, and that last year some 1,500 cases were dealt with, and pointed out that dogs have exercising paddocks and the cats are provided with a sun balcony. In conclusion, Sir Crawford McCullagh said he wished them greater financial success.

"The Earl of Antrim stressed the practical side of the work. He said that while the U.S.P.C.A. does much good work by preventing cruelty to animals, it thus ensures a greater degree of health and happiness to the people. This was seen most clearly in the case of the treatment of agricultural stock on their way to fairs. He suggested, though, that there were other forms of cruelty more

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enduring in their results than these occasional inflictions. 'Bad stabling and lighting and dirty surroundings are worse than a beating on the way to markets and overcrowding in motor trucks.' He suggested that this was a problem worthy of thought, and a solution would be of service both to farmers and consumers of meat and milk.

"The Very Rev. the Dean of Belfast felt that an enterprise of this kind showed a distinct moral advance. The duty of extending our medical resources for the relieving of pain in the animal world had now been realised, and various forms of cruelty had now been stopped. He used to feel that animals were better treated in Great Britain than on the Continent, but recently he had discovered that Germany spent a hundred times as much on veterinary treatment as Great Britain and Ireland. He wondered why it should be a purely voluntary work, and suggested that the Government should take some interest in the work.

"Dean Kerr said that there was a great opportunity for work in the schools. 'Little boys are naturally cruel animals, but much can be done by instilling better thoughts,' he said. Bird-nesting was a never-failing source of delight, and nowadays many boys made themselves protectors of the nests. Sir William J. Allen, D.S.O., M.P., and Mrs. W. R. Young, J.P., also spoke."

BOVINE TUBERCULOSIS IN CHILDREN, FROM MILK.*

By NATHAN RAW, C.M.G., M.D.

DR. NATHAN RAW has had forty years' experience in hospital and laboratory work connected with tuberculosis, mainly in Liverpool. Until recently he was a member of the International Tuberculosis Committee. The following extracts are taken from his address:

When Dr. Raw met Professor Koch.

"Professor Koch discovered the tubercle bacillus fifty years ago, in 1882. In 1901 he openly stated at the Tuberculosis Conference in London, at which I was present, that bovine tuberculosis could not be conveyed to man, and that no public health measures were necessary. In 1908, at the International Conference in Washington, he reiterated his view that bovine bacilli could not be conveyed to humans, but he met with a storm of opposition. After a long debate he agreed to meet, in secret session, a few of the delegates to the Conference, and the late Professor Sir German Sims Woodhead and myself were nominated to represent Great Britain. The secret session took place in a room in the new Willard Hotel in Washington. The doors were locked, and no one was permitted to enter or leave until the session was ended. After a long but friendly discussion lasting three hours the great man gave way, and admitted that it might be possible for

* Read before the Twenty-First Annual Conference of the National Association for the Prevention of Tuberculosis, held at Southport, June 27th to 29th, 1935.

bovine tubercle bacilli to be conveyed to the human body, and so set up tuberculosis. Professor Koch was a kindly and sociable man, but it was only to be expected that he could not change his long-established views without very strong evidence.

Britain's Infected Dairy Herds.

" The universal medical view to-day is that bovine bacilli conveyed to the human cause a large amount of tuberculosis in man. . . . The bovine bacilli are conveyed to the human, especially to infants and young children, invariably by milk. A certain percentage of butter and cheese and other dairy products may become infected, and if introduced into the human body may cause active disease ; but the great and dangerous medium is cow's milk. It is believed by veterinary authorities that between 40 and 50 per cent. of all the dairy cows in this country to-day are suffering from tuberculosis. Fortunately it is only those cows that are affected in the udder which are dangerous, and the number of such cows is estimated to be 1 to 2 per cent. of the total. But we must bear in mind that if only 1 or 2 per cent. of a milking herd are affected in the udder, the milk, being all mixed together, becomes contaminated. About 8 per cent. of samples of milk delivered into the large towns in England contain living tubercle bacilli, so that we have to recognise that a very serious and dangerous state of affairs is existing at the present day. The method of testing dairy cattle for tuberculosis is not by any means satisfactory, and the veterinary profession is now asking for some universal test which will be more certain and reliable.

Pasteurisation of Milk.

" The deaths from tuberculosis in children up to ten years of age are estimated at about 3,000 per annum in Great Britain, but that does not represent the enormous amount of permanent crippling and deformity in those who have survived an attack. The remedy *par excellence* is pasteurisation of milk, and this can be easily accomplished by raising the milk to a temperature of 140° F. for twenty minutes; but the process of pasteurisation must be very carefully controlled, preferably by official control, so that it is perfectly done. In America and Canada pasteurisation is almost universal, and on my last visit to the States a few years ago I visited several cities with a complete pasteurisation plant. In fact, no milk was allowed to be sold to the public until it had undergone this process. In speaking to a New York physician to a children's hospital, he informed me that the ordinary surgical tuberculous diseases of children had, since the introduction of compulsory pasteurisation, practically disappeared.

Infected Meat, Butter and Cheese.

" The eradication of tuberculosis from dairy cows is undoubtedly one of the most serious problems of the day, from the point of view of the producer of livestock and for its immense influence on public health. That a large percentage of the tuberculosis in human beings is conveyed by the milk of cows suffering from tuberculosis of the udder has been demonstrated beyond doubt ; the per-

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centage of cases arising from the consumption of infected meat, and also butter and cheese, though not yet definitely determined, must be considerable. The danger of infection is accentuated by the fact that the ordinary farmer may not even suspect the presence of tuberculosis in his animals, and these may apparently thrive and fatten. . . . The only real solution, however, is to prevent the infection of calves. This is rendered more easy by the fact that calves are born healthy and quite free from tuberculosis. They are, however, liable to infection if not separated from diseased animals, or if fed on infected milk. To ensure their remaining healthy it is desirable that they should be rendered immune from the possibility of contracting the disease."

HOW MAY THE CHILD BE SAFEGUARDED AGAINST BOVINE TUBERCULOSIS?—WITH SPECIAL REFERENCE TO THE MILK SUPPLY.*

By MAJOR A. B. MATTINSON, F.R.C.V.S.

THE present Acts and Orders dealing with tuberculosis in cattle and tubercular milk do not protect the population of this country, Major Mattinson contended in his address. As a result thousands of children whose main diet is milk are being infected. The following are extracts from Major Mattinson's paper:

Our Tainted Herds.

ANIMALS DEALT WITH UNDER THE TUBERCULOSIS ORDER IN 1933.

Country.	Number of animals dealt with
England	16,396
Scotland...	3,147
Wales	1,365
Great Britain	20,908

"Allowing for various factors affecting these figures, it is quite obvious that we had in 1933 some 20,000 cattle in our dairy herds substantially valueless, and a source of great danger to other animals and to human health. I have no hesitation in saying that under active veterinary supervision at least double this number of useless and dangerous cattle would be eliminated in the next twelve months. I believe that the county of Lancaster is at least as well governed as any other large public authority, and although one hears much criticism of its extravagance, one does not hear it accused of parsimony. The following compilation from the accounts for the year ending March 31st, 1934, may be of interest:

* Read before the 21st Annual Congress of the National Association for the Prevention of Tuberculosis, held at Southport, June 27th to 29th, 1935.

TUBERCULOSIS ORDER—RECEIPTS

	£	Pence
Refund of special costs	1	—
T.B. Order, 1925. Grant from Ministry of Agriculture	1,555	0.0427
Sale of carcases	748	0.0205
Total	2,304	0.0632
Expenditure	7,661	0.2103
Receipts	2,304	0.0632
Net expenditure*	£5,357	0.1471

* Penny rate estimated to produce £36,416.

Where the Blame lies.

" If one were asked to state briefly the cause of the high incidence of bovine tuberculosis, I believe that a correct reply could only be : the grave apathy and dereliction of duty of the State ; I know of no other explanation of the present condition of affairs.

The Tuberculosis Order, 1925, is Ineffective.

" The Tuberculosis Order deals only with certain scheduled forms of disease, *viz.*, tuberculosis of the udder, tuberculous emaciation, and chronic cough, together with clinical signs of tuberculosis. A great many cattle extensively affected in a clinical sense do not cough. Notification of the existence of disease in any of the specified forms is obligatory, but is fulfilled more in the breach than in the observance ; this is a matter for the local authority. The veterinary supervision of many markets, fairs and sales is non-existent, but most highly desirable. The thorough disinfection of infected premises is of the highest importance, yet is seldom properly enforced.

There is Too Much Milk.

" The milk industry is suffering acutely from over-production : I believe that about 12,000,000 more gallons were sent in to the Board in March than in March of last year, and it requires no profound economic calculations to see the inevitable result of this glut, which is deluging the country with unwanted milk. The principles of Gresham's law extend far beyond currency, and less pure milk, if cheaper, will substantially drive the purer, if dearer, milk from the homes of the more humbly situated consumer, who, most of all, requires a cheap and plentiful supply of the pure article. A bonus of, say, 3*d*. per gallon of 100 gallons of milk used at home in rearing a heifer calf, with a bonus of, say, 10 per cent. on the selling price on the same when sold as a " springer " or " down-calver," at not less than two and a-half years old, subject to passing the tuberculin test, applied at the cost of the local authority if the animal passes, would ease the milk glut enormously and provide us with healthy stock to replenish our herds.

The Tubercle-Free Herd.

" The principle of the tubercle-free herd is a correct one, but hope of its extensive attainment calls for too much optimism, with future disappointment, and

one can see little prospect of success for this scheme unless the State is going to take a much more active part in the control of bovine tuberculosis.

The Way of Progress.

" It is a travesty of the King's English to speak of a nation as civilised where no sincere efforts are made to control the ravages of bovine tuberculosis. When every milk-producer realises that if, by reason of indifference, apathy or incompetence, he fails to notify suspicious abnormalities of the udder, he is exposing himself to the risk of prosecution to show cause why he should not be deprived of his producer's licence, we shall have made substantial progress in dealing with this loathsome scourge."

HOW MAY THE CHILD BE SAFEGUARDED AGAINST BOVINE INFECTION, WITH REFERENCE ESPECIALLY TO MILK SUPPLY?

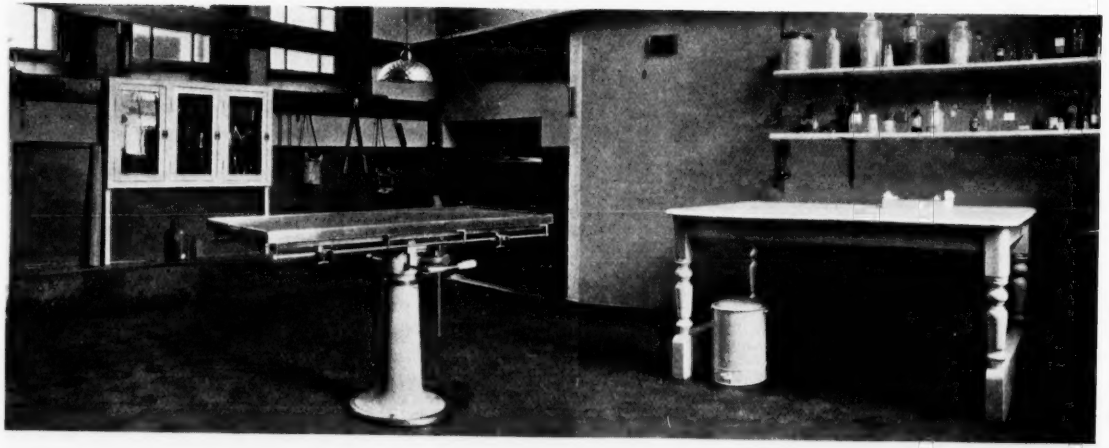
By M. CHRISTIANSEN*

Copenhagen.

In England it is computed by veterinary authorities that between 40 and 50 per cent. of all the dairy cows to-day are suffering from tuberculosis. Ten years ago that was the state of the dairy herds in Denmark, on the isles of Zealand, Lolland, Falster and Fuenen. To-day 80 per cent. of these dairy stocks are free from tuberculosis. Professor Christiansen, of Copenhagen, told the Annual Conference of the National Association for the Prevention of Tuberculosis how that remarkable result was achieved. Here is the extract from his Paper:

" When on this occasion I have been invited to speak of tuberculosis in cattle, the reason for this, I think, is essentially the fact that Denmark has been the first country to start a rational eradication of this disease. As early as 1892, Professor Bernhard Bang, of Copenhagen, advanced his plan for combating of tuberculosis in cattle. Since then his method has been adopted and carried out to a large extent, not only in Denmark, but also—perhaps modified in some respects—in many other countries. With Bang's method, tuberculin is employed to determine which animals are attacked by tuberculosis and which ones are free from this infection. In districts where the disease is rather uncommon, it will be financially practicable at once to rid the cattle herds of tuberculosis by killing every animal which gives a positive tuberculin reaction. But in those districts where a large percentage of the herds give positive reactions on the tuberculin test, as is the case in most European countries, it will not be practicable for economical reasons to carry through such a radical cleaning out at once. Here the elimination of the tuberculous animals has to be distributed over a longer

* (Professor in the Veterinary School at Copenhagen). Read before the Twenty-First Annual Conference of the National Association for the Prevention of Tuberculosis, held at Southport June 27th to 29th, 1935.



Canine Operating Theatre.
Ulster Society's Hospital for Animals of the Poor.

period. According to Bang's method, only those reacting animals are killed in which the tuberculous condition implies a danger of infection through the milk. The other reacting animals are isolated completely from the sound animals, but they are still kept for milk production, and perhaps for breeding too. Calves of reacting cows are transferred as soon as possible after birth from the reacting division to the healthy division, where they are given milk from healthy cows, or pasteurised milk from reacting cows. In this way it is possible to keep the young animals in good health ; as they grow up they are kept as stock animals, and not slaughtered, to replace the reacting animals which are gradually eliminated from the herd. This, then, is the principle of Bang's method : Continued separation of reacting animals from the healthy part of the stock, and replacement of the reacting animals by sound heifers (raised on the respective farm or purchased non-reacting) till the stock consists exclusively of sound animals. And this result, I may point out, is attained in a financially easy manner—something that means a great deal to the owner of the stock. When the stock is sound it is continually kept under tuberculin control. The tuberculin test is applied to every animal in the stock at least once a year. If this test reveals that infection has been introduced in the stock from the outside, it is easy to keep it from spreading by removing any reacting animal at once. In Denmark the combating of tuberculosis in cattle after Bang's method has always been optional, the law requiring only that tuberculous animals, if infectious, shall be destroyed at once. But if voluntary combating of tuberculosis in cattle is to gain any headway, it is essential to make the general public interested in the matter, and to make it realise the great significance and advantage of such a campaign. In Denmark the last decade has brought a great and highly profitable progress of the combating of tuberculosis in cattle, largely because the danger of this disease to man has now been demonstrated indisputably.

" The results of this fight in recent years, based in part on co-operation in various forms, have been very encouraging in several respects. It may be mentioned, for instance, that tuberculosis in cattle has now been eradicated completely on several Danish islands (Bornholm, and several smaller islands with about 6,000 herds, comprising a total of about 75,000 cows). Complete eradication of cattle tuberculosis has also been accomplished in several dairy districts of the larger islands ; all the stocks which furnish milk to the respective dairies are now perfectly healthy. One of the greatest Danish dairies (Trifolium) which, for one thing, delivers a large part of the milk consumed in Copenhagen, is supplied exclusively from healthy stocks. A sanitary regulation lays down that from 1938, at the latest, all milk distributed in Copenhagen must come from healthy tuberculin-tested stocks. Several provincial towns in Denmark have already carried through a similar requirement concerning the milk distributed for sale. Without going into details, I may mention that only some ten years ago no more than about 50 per cent. of the dairy stocks in the Danish isles of Zealand, Lolland, Falster and Fuenen were free from tuberculosis ; to-day we can safely say that 75 to 80 per cent. of all the dairy stocks in these islands are free from tuberculosis. These

results, and the great interest the general public in Denmark is now taking in the problem of combating tuberculosis in cattle, give us a right to expect that this development will continue on the same good road, so that the final goal—eradication of tuberculosis in cattle—may be reached in a not too-distant future in the greater part of Denmark."

METHODS USED IN THE PREPARATION OF A NEW TYPE OF DEAD ANTI-ABORTION VACCINE.

Bovine Uterine Fluid as an Enrichment Medium.

By W. R. KERR, D.V.S.M., M.R.C.V.S.; H. G. LAMONT, M.Sc., M.R.C.V.S.; and P. L. SHANKS, B.Sc., M.R.C.V.S.

Veterinary Department of the Ministry of Agriculture for Northern Ireland.

As the title of this note indicates, its purpose is to place on record the method of preparation of a new type of dead anti-abortion vaccine which has been giving encouraging results, and to refer generally to the use of uterine fluid in the enrichment of culture media. In estimating the value of anti-abortion vaccines, there is always the difficulty in securing properly controlled experiments, and in Northern Ireland, where there is a preponderance of small herds, this difficulty has been experienced to an unusual degree. Herd owners will not agree to leaving control animals, and in the larger dairy herds the continual buying and selling of cows to maintain the milk supply seriously militates against the interpretation of results. We hope, therefore, as the result of the publication of this note, that other workers who have suitable herds for experimental purposes may endeavour to assay the value of this vaccine.

Method of Preparation.

It has long been known that many organisms grown on artificial media undergo alteration in respect of virulence and morphology, and in the culture media used for the preparation of this vaccine we have endeavoured to introduce an unaltered body fluid, so that the organism will have access to a natural food supply. The underlying principle is to grow organisms which will approximate as closely as possible in structure and virulence to those found under natural conditions. In attempting to grow *Brucella abortus* under these conditions, it occurred to us at once that the most suitable body fluid to use would be the fluid collected from the pregnant uterus of the cow, and in actual test we found that the organism grew much more readily in this medium than in any of the broths in common use.

The uterine fluid was collected in a two-litre flask in the abattoir from a freshly slaughtered pregnant cow, taking ordinary aseptic precautions. The fluid thus collected was removed to the laboratory with as little delay as possible, and filtered through a large Seitz filter. It was then added in 40 c.c. amounts to Jena flasks of a 250 c.c. capacity, which contained 75 c.c. of sloped trypsin agar.

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The pH of the agar was adjusted colorimetrically so that after sterilisation it closely approximated to a pH of 7.5. Examination of samples of uterine fluid showed that all were alkaline and that the average pH was about 8.3 (colorimetrically). Any flask which was subsequently found contaminated on incubation was discarded.

Culture.

The cultures used for seeding the flasks were raised from the fourth stomach of aborted fœtuses by inoculating a small quantity of the abomasal contents on to the surface of ordinary trypsin agar slopes flooded with 1 c.c. of filtered uterine fluid. The cotton-wool plug was then ignited, and while still burning was pushed into the culture tube, which was capped immediately with a tightly-fitting rubber cap. A vigorous growth is usually apparent in three or four days, but occasionally growth may be delayed for as long as fourteen days.

Stock cultures are maintained on trypsin agar slopes flooded with uterine fluid. No cultures are in use which have been isolated longer than six months. The Jena flasks are sown with a well-charged platinum loopful of growth from the stock tubes. The flasks are incubated at 37.5° C. for two months. During this period the surface area of the slope is washed over with the contained uterine fluid every second day. After incubation it is stored for one month at room temperature in a dark cupboard, and then retained in the refrigerator at a temperature of 2° C. for a similar period. Before being stored in the refrigerator, the growths of all the flasks are washed off with the contained uterine fluid and shaken carefully so as to ensure thorough suspension. This heavy emulsion is then poured into a graduated flask and diluted with normal saline, so that the final suspension is five times as dense as the No. 5 tube in McFarland's nephelometer, or, in other words, when diluted five times the resulting suspension corresponds in opacity to the No. 5 tube in McFarland's nephelometer. Euflavin is added to the emulsion in the proportion of 1 in 10,000 parts approximately. These various steps have been adopted with a view to ensuring that the greater number of the organisms in the emulsion will have died naturally. Euflavin, which has been found experimentally to be lethal to *Br. abortus* in dilutions of 1 : 100,000 in forty-eight hours, is added in a strength of 1 : 10,000 to ensure that any of the organisms which may have survived the prolonged incubation and storage are rendered inert.

Vaccination.

An initial dosage of 10 c.c. is tentatively suggested, and this should be repeated after an interval of one to two months. The vaccine has been injected into a large number of abortion-free pregnant animals without causing any ill effects. It can, therefore, be used with safety in both pregnant and non-pregnant animals. An animal before vaccination should be submitted to the agglutination test to determine as far as practicable its freedom from abortus infection, as it is unlikely

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that vaccination will affect the course of the disease in already infected animals. (Vaccinated animals will, of course, react to the agglutination test.)

The vaccine has been used by a number of veterinary surgeons practising in Northern Ireland, and they have expressed satisfaction with the results. A controlled experiment was carried out on only one herd, which prior to the experiment had experienced several abortions, and immediately prior to vaccination contained twenty definite reactors to the agglutination test. Since vaccination no abortions have occurred in either the vaccinated or the control animals.

Bovine Uterine Fluid as an Enrichment Media.

As a matter of interest, a small experiment was conducted to estimate the effect of the addition of uterine fluid to trypsin agar on the growth of certain organisms. Three separate lots of media were prepared. In the first lot the trypsin agar was melted and cooled to 60° C., and then 10 per cent. of uterine

TABLE I.

Organism used.	Amount of saline in c.c. used.		
	Fluid in medium.	Fluid *plus* medium	Control.
Staphylococcus	300	190	130
Streptococcus	11	11	5
Br. abortus (freshly isolated)	53·5	53	40
Br. abortus (old strain)...	220	165	155
B. pullorum	310	295	270
B. typhosus	310	280	210
B. diphtheriæ	35	30	12

fluid was added and thoroughly incorporated in the agar, which was then sloped. (fluid in medium.) In the second batch the trypsin agar was sloped, and 10 per cent. of uterine fluid added (fluid *plus* medium). In the the third batch no uterine fluid was added (control). The surface of each slope was sown with a standard platinum loopful of the various organisms tested, and the tubes were incubated for forty-eight hours.

The results were tested by washing off the resulting growth in normal saline and emulsifying. Normal saline was added in each case until an opacity equivalent to No. 1 on the McFarland nephelometer was obtained. The amount of saline necessary in each case was taken as a basis of comparing the growths. The results are given in Table 1. It will be noted that the organisms grew best on medium containing uterine fluid (fluid in medium), closely followed by media *plus* fluid, and least of all on the control medium of trypsin agar alone. The above experiment, although limited in nature, suggests that bovine uterine fluid possesses enrichment properties which may be of use in the cultivation of certain organisms.

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THE EFFECTS OF CERTAIN ACID TREATMENTS FOR COCCIDIOSIS ON THE H ION CONTENT OF THE FOWL'S INTESTINE.

By W. R. KERR, D.V.S.M., M.R.C.V.S., and R. H. COMMON, B.Sc.

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VARIOUS workers (*e.g.*, Beach, Davis and Neff) have recorded good results from the administration of hydrochloric and acetic acids, buttermilk, milk, cultures of lactic acid producing organisms, etc., to chickens affected with coccidiosis. The view has been taken that these agents in some manner or other render the intestinal tract acid in reaction and unsuitable for the development of the various stages of the parasite. Experiments by other workers do not indicate that these agents have any value in the treatment or prevention of coccidiosis.

It has been pointed out (Mussehl, Blish and Ackerson, 1933) that the fowl possesses to an extraordinary degree the power of maintaining a normal intestinal reaction on different diets. Observations in this laboratory with birds receiving high $CaCO_3$ rations support this opinion. At the same time the effects of the usual routine treatments with hydrochloric acid or buttermilk upon intestinal acidity do not appear to have been investigated. Accordingly, during 1935, a number of observations were made in this connection. The pH determinations were made by means of a quinhydrone electrode.

The " normal " figures secured for the control birds do not differ greatly from those reported by other workers (*see* Table I). The gizzard contents have much the highest acidity, but this is reduced immediately the food enters the duodenum to about pH 6.3. The reaction in the small intestine is about the same, except that the last third tends towards neutrality or slight alkalinity. The reaction of the cæca is somewhat variable, doubtless according to the length of time which has elapsed since the last cæcal evacuation, but the values observed are usually about neutral or slightly alkaline. McLaughlin's figure of pH 1.9 for cæcal contents is exceptional.

The values secured for birds treated with buttermilk or hydrochloric acid as for coccidiosis vary very little from the values secured with the controls. Ashcraft (1933) investigated the effects of various milk products, and concluded that milk products in general tended to increase the pH of the contents of duodenum and ileum, and to decrease the pH value of cæcal contents. It will be noted in Table II that the pH value of the first portion of the small intestine was somewhat increased by buttermilk treatment in the present experiments, but the effect was not great. It is difficult to believe from these results or those of Ashcraft that increased acidity is of itself responsible for the curative effect on coccidiosis.

Ashcraft makes the following observation : " The cæcal contents present a characteristic firm, brown, pultaceous mass when birds are fed upon milk-free

TABLE I.—THE pH OF THE INTESTINAL CONTENTS OF THE NORMAL FOWL.

Observer	Birds used	No. of birds	Crop	Proventriculus	Gizzard	Duodenum	Small intestine	Cæca	Large intestine	Cloaca
Beach (1925)	—	6	—	—	—	6.4	—	6.4	—	—
Neff (1931)	Hens	—	—	—	—	—	—	—	Fæces, 6.4–7.1	
McLaughlin (1931)	—	8	—	5.6	3.4	6.3	Ileum, 6.3	1.9	—	—
Ashcraft (1933)	Leghorn hens	10	—	—	—	6.0	Ileum, 6.1	7.1	—	—
Mussehl, Blish and Ackerson (1933)	Leghorn cockerels	20	—	4.8	2.9	6.1	6.1 6.9	6.3	—	—
Mayhew (1935)	R.I.R. pullets and cockerels	10	4.9	4.5	—	6.0	6.0 7.1 7.2	7.2 7.1	—	—
Kerr and Common	Pullets and cockerels	11	4.0	3.6	3.0	6.3	6.1 6.7 7.0	7.0 7.2	6.7	6.8

TABLE II.—THE pH OF THE INTESTINAL CONTENTS OF FOWL RECEIVING "ACID TREATMENT FOR COCCIDIOSIS."

Treatment	Birds used	No. of birds	Crop	Proventriculus	Gizzard	Duodenum	Small intestine	Cæca	Large intestine	Cloaca
Normal diet	Pullets and cockerels	11	4.0	3.6	3.0	6.3	6.1 6.7 7.0	7.0 7.2	6.7	6.8
Buttermilk	Pullets and cockerels	9	4.0	3.5	3.0	6.3	6.6 6.7 7.2	6.7 6.7	6.5	6.9
Hydrochloric acid	Pullets and cockerels	8	—	3.1	2.9	6.3	6.3 6.4 7.4	7.1 6.8	6.6	6.7

The pH values were averaged arithmetically.

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rations. This invariably changes to a yellow, creamy, frothy mass when birds are fed upon rations containing milk products. The cæcal horns are distended to two or three times their normal size." This observation was confirmed in the case of the birds on the buttermilk diet ; a somewhat similar effect was produced by the hydrochloric acid treatment, although not to such a marked degree as far as the present observations go. The pale, frothy cæcal contents of the birds under the buttermilk treatment had lost the characteristic evil smell of ordinary cæcal contents.

Conclusions.

The evidence that the various " acid treatments " for avian coccidiosis are beneficial is open to doubt. It has been generally supposed that these treatments bring about an increase in intestinal acidity. The work now reported indicates that the feeding of these "acid" agents to fowls, according to the recommendations for treatment of coccidiosis, does not render the intestinal contents more acid than normal. Therefore, if these agents are of benefit, the explanation must be sought elsewhere, and the suggestion is made that, in the case of milk preparations, the good results claimed may in some measure have been due to the nutritive properties of the milk.

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SOME OBSERVATIONS ON DENTAL SURGERY ON DOGS.

By G. WARREN ARONSON, L.D.S., R.C.S.Eng., and L. LESTER, M.R.C.V.S.

It is noticeable that in many young dogs that have suffered some form of debility during puppyhood, that is, prior to eruption of permanent teeth, erosion cavities are present. This condition applies as a rule to the whole permanent dentition. Scaling and polishing are totally inadequate in most cases, due to the fact that the enamel has not been truly formed or has broken down. It is noticeable in these cases that the enamel has become very stained and the dentine to some degree soft. Three alternatives are presented : (1) extraction (which is undesirable) ; (2) attempts to polish ; (3) filling cavities.

Dogs obviously would resent prolonged drilling of teeth, therefore the type of anæsthesia most suitable is that which produces complete and prolonged anæsthesia without undue salivation, and in no way interferes with the operation. We have found nembutal, given intravenously, with a small dose of atropine given one hour before (subcutaneously), to meet every requirement.

The technique of a specific case selected for filling canines in a two-year-old terrier bitch was as follows:

Injection Technique.

Dog weighed 16 *lb.*—Nembutal is estimated at one-fifth grain per pound bodyweight, a solution 1 gr. to 1 c.c. being injected intravenously into the left hind leg. By this method it is found that some animals take more than one-fifth grain per pound and others far less, depending upon age and toxicity of the subject. In this particular case 4¼ grs. were given. One three-hundredth grain atropine sulphate was given one hour before the operation to check salivation. Anæsthesia lasted one hour and twenty minutes. Post-operative condition showed the animal to be normal in twelve hours without any signs of shock.

Preparation of Cavities and Filling.—This case presented four irregular-shaped cavities in $\frac{3}{3}$ $\frac{3}{}$. Preparation was carried out by means of ordinary burrs, which proved quite suitable. Completion of enamel edge of cavities required medium carborundum stones owing to hardness. It was noticed in $\overline{3|}$ that the thickness of the dentine in dog's teeth is not to the same degree as that of humans; and this was apparently general in all the dog's dentition, as seen from radiographs taken before the operation. All four cavities were lined with cement and filled with porcelain. The completion of the fillings presented little difficulty, the amount of saliva present being of such small quantity that a more ideal condition for conservative treatment would be difficult to find. With the exception of one cavity where the dentine was quite soft, it was necessary to use the small (very sharp) wheel and inverted cone burrs, owing to the hardness of the dentine. One difficulty was present in the fact that the cornæ of the pulp extends higher in the crown than in humans. This can be observed by examination of the radiographs. The amount of decay in these canines tends to show that this state of erosion was present before eruption. There is no available text matter on this branch of veterinary surgery to which we have had the opportunity to refer.

MR. WALTER ELLIOT ON THE MILK SITUATION.

SPEAKING at a National Government meeting at Yeovil, Somerset, recently, Mr. Walter Elliot, Minister of Agriculture, said: "In Somerset and Dorset milk production is a mainstay of the countryside. For nearly two years now the marketing of the nation's milk supplies has been entrusted by producers to the Milk Marketing Board. I do not suggest that the Board has satisfied everyone—

even the great businesses of the country, with scores of years of experience behind them, could not claim that. Indeed, defects are being inquired into by the Milk Commission, which at this very moment is going carefully into all the points raised by those who desire amendment of the scheme. But the Board differs from many of the great enterprises of the country because on a poll it can be voted away. That is in the statute under which the Board works, and that statute will be fully observed. So the question of a poll on the continuance of the scheme has been raised. The Board have decided that if a poll is wanted, a poll shall be held ; and the sooner the better, so that contracts for the next dairy year are not discussed in an atmosphere of uncertainty. Their decision, I think, is wise from a business standpoint, and it is thoroughly in accordance with both the spirit and the letter of the Agricultural Marketing Acts.

" Let me make it clear, as I have done on a previous occasion, that if producers wish to scrap any of the schemes and boards, the Government will not stand in their way. But before producers deliver their judgment on the Milk Board, there are certain questions which I think they should put frankly to themselves in their own interests.

" These are some of the points they should carefully consider. Firstly, since 1931 a quarter of a million cows have been added to the dairy herds of this country. What are we going to do, the day after the vote, with that quarter of a million? In the first five months of this year 58 million more gallons of milk have been put on the market in England and Wales as against the same period of 1934. What is going to be the position for the second five months of 1935, and what are we going to do about that milk, the day after the vote ? Who are we going to sell that milk to, the day after the vote, and for those of us who can sell our milk, how long will it be before the surplus milk from elsewhere comes to flood our markets ? Are we sure of getting a profitable price if we are thrown back on our own resources and have to compete more and more keenly with each other to find a buyer ? To abolish the Board does not transfer a single gallon of milk from the manufacturing to the liquid market.

" There are three things we all want. We want the consumers to drink more milk. We want quality for that. Quality gives confidence. Quantity is sought by the Board in such ways as the Accredited Producers scheme. Will quality as a whole be helped if you sweep away the Board ? Secondly, we want cheaper milk where it will do most good ; and where it will do most good is with the children. We are selling to the schools twenty-five million gallons a year. Will that be helped or hindered if we sweep away the Board ? Lastly, we want co-operation between organised industry and the Government. Will that be helped or hindered if the organisation of the milk industry is swept away ?—as it must be if you sweep away the Board.

" But milk alone, or wheat alone, or beef alone, will not save the industry of agriculture in Great Britain. We must have a balanced industry if it is to give

its full contribution to the life of our country. We want a balanced industry because we do not want our agricultural population to be all engaged merely on one product. It narrows men and weakens them. But it also narrows the country and weakens the country. We have seen even in our own island the great evils which may come to any town or country which relies only on the making of one product. A change of fashion or of taste and the whole population is out of work. We want to insure against that in agriculture. It is for that reason that we have made such strenuous efforts to maintain the beef industry. The long-term policy of the Government is well known : a Wheat Act policy for meat, by which a levy-subsidy or ear-marked tariff can be applied to the greater prosperity and efficiency of the industry. But that policy has required, and will require, time to work out. To give us that time the Government has authorised the introduction of the further Cattle Bill, which will be moved in the House of Commons. That enables us to carry on till October, 1936, which is nearly sixteen months from now. That means that the producers have sixteen months instead of three over which to make their arrangements. It is an inestimable boon to the beef men, and it fully implements the pledge given in the White Paper of March, 1935, that it is the firm intention of His Majesty's Government in the United Kingdom to safeguard the position of the United Kingdom livestock industry.

"All this hangs on consumption. We have created the conditions for expanding consumption by increasing the countryside's purchasing power (and not only the countryside's, but that of hundreds of thousands of men and women in the towns who have regained employment since 1931), while keeping the price of food to the housewife low. Farm prices to-day are almost at the same level as they were in 1931, after falling considerably in the years between ; retail food prices were 7 per cent. less in 1934 than in 1931. It is then not surprising that the consumption of many products is increasing year by year. We eat 25 lb. of butter each in a year, an increase of 7 lb. in the last five years. We are each eating 19 more eggs than seven years ago, 8 lb. of meat more than eight years ago. Last year we consumed 95 lb. of fresh fruit per person, far the highest figure ever recorded. There is no doubt that more food is passing through the shops. It is estimated that in May this year the value of retail sales in Great Britain was 2.2 per cent. greater than in May, 1934, sales of food and perishables alone being 6.3 per cent. higher in value. In the four months February - May this year, total retail sales were 4.3 per cent. higher, and sales of food and perishables were 5.7 per cent. higher than in the same months of 1934. We have to foster such developments. For the farmer's price, and therefore his workmen's wages, depend upon the market. If there is a strong market he will receive a good price, and they will receive good wages. And the way to ensure a strong market is to increase consumption where and as we may."

MILK CLEAN AT THE SOURCE.

By G. MAYALL, M.R.C.V.S.
Bolton.

THE science of eugenics makes little progress as far as humanity is concerned. It would seem as if it ought to make a considerably greater advance in the case of animals. While much attention is being given to the spotting and checking of disease in animals, especially in connection with dairy inspection, a co-equal enthusiasm does not seem to arise as regards measures to produce sound stock. It is surely better to concentrate on the production and rearing of healthy calves and heifers than to detect and slaughter tuberculous cattle. As one authority has written when advocating a " young herd " plan : " Few people seem to be able to think of tubercle apart from a syringe and tuberculin, and some other idea ought to be brought forward."

Apart from the detection of the tuberculous cow and the safeguarding of the milk supply, which is an onerous and somewhat anxious duty in dairy inspection, the practitioner who takes an all-round view will see several other matters in his routine examinations which call for attention if the milk supply is to be a good one. One of the most frequently encountered defects of the udder in dairy cows is *warts*. I have never been able to see why good milk should contain a quantity of epithelial scales. Most of these cases would not come to the notice of the veterinary surgeon at all if it was not for the fact of routine inspection, and one seldom finds any real attempt of the cow-owner to get rid of them. In the majority of cases they are cylindrical and composed of a mass of villi. Many of them can be plucked off the teats without causing much harm if a little castor oil is applied afterwards. Thicker warts may perhaps be strangulated and gradually removed. There is a popular idea that the blood from a wart flowing over a healthy skin will produce a crop of warts in its train. As far as animals are concerned, at any rate, we do not think there is much in this idea, although it is always wise to remove a wart with as little hæmorrhage as possible gaining access to the adjacent or remote skin. Large warts, whose removal may be painful, may previously be frozen with ethyl chloride spray and removed surgically. Thereafter, touching the spot with a little strong perchloride of iron and the judicious use of castor oil when milking will produce good results. During the interval of three months between one inspection and another, where proper measures have been adopted, we have seen a whole crop of warts on a cow's teats disappear.

A second condition frequently seen is a *scurfy, scaly skin* at the root of the tail and over the croup region. We have seen this condition mainly in the March quarter before the cows are turned out to grass. A bland oil with a little sulphur and paraffin soon remedies this abnormality, especially if some linseed cake is also given in the diet. Here, again, nothing is done unless the veterinary surgeon calls attention to it ; and yet it ought not to be.

Vaginal discharges (blood or leucorrhœa) are often very casually regarded by

some owners. The cow is left in the shippon with her mates, and no attempt at isolation is made even where facilities exist. Parenthetically it may be observed that the chief gross impurities found in milk, as evidenced by the clarifier, are blood, pus, hair and dung. The hygiene of the genital organs in the female needs a lot of stressing in connection with a pure milk supply. Even where there is no provision for isolation, the cow may be placed in a position where she can do the least harm, and not left in a stall with a mate on each side of her.

Injections of permanganate of potash solution are one of the stock remedies, but it is somewhat slow in action, and considering the number of bacilli present in leucorrhœa, one wonders if a quicker and more salutary effect might not be produced by Devegan (Bayer), provided the cost is not prohibitive.

Ringworm has been occasionally encountered, but its checking and cure has not presented much difficulty. The liability of its transmission to man ought not to be overlooked. Diseased hair and scales are removed and burnt, and the part dressed several times with tincture of iodine or lard, sulphur and ol. picris. Has anybody yet discovered how ringworm originates? Is it a saprophyte and a disease acquired at pasture?

Mange.—Perhaps the less written about this the better. Where it originates in a dairy herd it is the very devil to get rid of. We are not so favourably placed with regard to it as we are in horse practice. We have only encountered one case of it in a seven-years' experience of dairy farm inspection. Most of the cows got it as well as the owner, and notwithstanding persevering efforts, it was not totally overcome until the cows were turned out to grass and the difficulties of the primitive standings and the cracks, chinks and crevices overcome. Creolin emulsions, Cooper's mange dressing, and oil and sulphur, checked the spread of the disease.

Cases of *mammitis* seem always to be with us. I have found the "Dislac" test, as mentioned by Mr. W. Mackson Young, F.R.C.V.S., very useful in detecting these cases. It is a difficult matter always to ensure that this milk does not get into the general supply, especially in chronic cases, and some of the best farmers get rid of such cows. It is clearly the duty of a routine examiner of dairy cattle to take an all-round view of his efforts to supervise the veterinary cleanliness of the milk supply. His outlook must be a broad one, and by no means "cribbed, cabined and confined."

SOME REMARKS ON B.C.G. VACCINATION.*

By E. RIST, M.D. Paris.

In 1908, Professors Calmette and Guerin produced artificially a non-virulent bovine tubercle bacillus which, when injected into cattle, wholly immunised them against what would otherwise have proved fatal doses of the virulent strain of bacilli. This non-virulent type is now known as B.C.G. (Bacillus-Calmette-Guerin). Satisfied of its harmlessness as regards cattle, they decided to make

* Read before the Twenty-First Annual Conference of the National Association for the Prevention of Tuberculosis, held at Southport, June 27th to 29th, 1935.

use of their discovery for the benefit of infants exposed to tuberculous infection. They advocated B.C.G. vaccination of infants as soon as possible after birth, before they had a chance of being infected. Calmette is dead, but experiments on the lines he advocated have been carried out on an important scale in nearly every civilised country but our own, and the results have been remarkable. Here is an extract from Dr. Rist's Paper describing the best planned and, in his opinion, the most important of these experiments. It was carried out in Goeteborg in Sweden.

Wallgren's Experiment.

" In this seaport of Goeteborg, with a population of about 250,000 inhabitants, the municipal dispensary is so well organised that it controls practically every family any member of which has an open pulmonary tuberculosis. Since 1928 every child considered by the dispensary to be in danger of infection has been vaccinated with B.C.G. either at birth or at a later age after his unsensitiveness to tuberculin has been duly ascertained. . . . No child was considered to be vaccinated, nor was it permitted to be exposed to any risk of infection until it had reacted. To ensure this all the children have been isolated in an institution or in a private home during the period of vaccination. Up to the end of December, 1933, the number of children vaccinated amounted to 355. . . ."

Dr. Rist then went on to consider 230 children who, after having acquired allergy through B.C.G. vaccination, were exposed to tuberculous infection in their homes.

" Only six children were exposed to the risk of infection at the age of six weeks, 45 under the age of three months, and 79 under the age of 9 months. The younger the child is exposed, the greater the risk of severe infection. The duration of exposure should also be considered. Nearly three-fourths of all children exposed during the first year of their lives have been exposed for a period of more than twelve months, and some of them up to from six to seven years.

" All vaccinated children have been examined clinically and roentgenologically at least once a year, and kept besides under the regular supervision of the dispensary. Only one of the 230 exposed children exhibited, on X-ray examination, an infiltration of the hilus of a decided tuberculous character. The patient was a boy whose father and a grown-up brother had open pulmonary tuberculosis. He had been vaccinated shortly after birth, and was returned home, at the age of six months, after the completion of vaccination. After six months of exposure he became ill with fever, and had symptoms of a respiratory disease. The Röntgen examination showed density of the lower part of the right lung and of the hilus. Virulent bacilli were found in the fluid obtained by gastric lavage. The tuberculous process presented by this boy was remarkably benign. He became afebrile after a week, and his general condition was never affected. Although he passed through a whooping-cough during his stay at the hospital, he was discharged after five months. The densification of the lung and hilus disappeared rapidly. It is interesting to notice that the boy's sister, aged six years, who had not been vaccinated, was also infected at about the same time after a short visit

at home. There resulted an extensive infiltration of the right hilus, for which she had to be nursed at the hospital for a whole year. . . . Out of 230 children exposed, only two have died: one, after an exposure of one and three-quarter years, from epidemic meningitis; the other after an exposure of six months, from acute pneumonia and diaphragmatic hernia. Both were examined post-mortem, and no signs of tuberculosis were found. . . . "

Towards Natural Immunity.

" I have quoted at some length from Wallgren's last paper concerning this admirable experiment, because it shows most conclusively, in my opinion, that B.C.G. vaccination is really able to protect previously uninfected children against virulent infection. The immunity conferred by B.C.G. is in all likelihood neither absolute nor lasting. Therefore it is important that the children should be exposed to virulent infection when the vaccinal immunity is at its height. The virulent bacilli are then absorbed and disposed of in the protected organism, without causing any damage, and the result of those repeated virulent reinfections, provided they are not too massive, is to transform the relative and short-lived artificial immunity produced by vaccination into a stronger and more lasting natural immunity. The harmlessness of B.C.G. vaccination has been proved without doubt. Its effectiveness was still a matter for controversy. It is no more so. Calmette and Guerin's discovery must be regarded as the first successful attempt at specific prevention of tuberculous infection in human beings.

Vaccination by the Mouth.

" Calmette, in order to avoid the deterring effect of the subcutaneous injection, advocated a method of administration which could produce no visible lesions, and consequently would be accepted more easily by the people. He had persuaded himself that micro-organisms can penetrate easily through the mucous membrane of the small intestine of very young children into the lymphatic system without creating any lesion of the mucosa. In older children the intestinal wall is not so easily penetrated by the germs. Calmette decided, therefore, to take advantage of those special conditions and to give the B.C.G. vaccine by mouth, and only to newborn infants. It is administered in three doses during the first ten days after birth. The procedure is perfectly harmless, and never produces the slightest morbid symptom. For this reason it has been easily accepted in France and in several other countries.

Experiments Abroad.

" In France only, from July, 1924, until March, 1932, 423,321 infants have received B.C.G. by mouth. In 1932 the number of vaccinated children was 5,699 in Belgium; 9,129 in Brazil; 2,166 in Montreal; more than 29,000 in Spain; 2,910 in Greece; 614 in Holland, 6,958 in Poland; more than 100,000 in Rumania; 5,659 in the province of Norbotten (Sweden); 14,146 in Uruguay, the sum total being approximately 600,000. In all the just-mentioned countries the experiment has been conducted under the supervision of well-trained physicians and with great care.

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Isolation Essential.

"If the newborn infant has a tuberculous mother, it is absolutely indispensable that it should immediately be separated for her or from any tubercle bacilli carrier living in the home. It should not be returned to the family until one month at least has elapsed since vaccination has been performed and it can reasonably be presumed that immunisation has taken place. Unobservance of this rule, emphatically insisted upon by Calmette and Guerin, exposes the child to infection by virulent bacilli before vaccination has produced immunity. Cases of tuberculosis occurring in vaccinated children who have thus been exposed during the non-immune period should evidently not be attributed to B.C.G."

Abstracts of Current Literature

Intoxications of Vegetable Origin. By A. Henry. (*Continued from page 232.*)

Corn Poppies.

Field poppies in the green state, in weeds, and in the dry state in straw, which is too plenteous in them, can produce accidents by delaying the digestive functions and constipation. The rabbit is not affected by them. I have seen intoxications due to the presence of poppies in litter.

Sinapis.

The plant commonly known under the name of charlock, and which is *Sinapis arvensis*, is often enough given to farm animals. When the plant is young accidents rarely result from it; but when it flowers, and, above all, when it carries seeds, it evolves essence of black mustard, very irritant for the digestive tube, and which is eliminated for the most part as sulphurous essences by the bronchi, and causes abundant bronchorrhœa, and very characteristic of intoxication by cruciferæ. The seeds of *Sinapis arvensis* are sometimes found in quantity in hay given to horses. If it is fed regularly and in the stable, the animal knows quite well how to pick out the foreign seeds with its upper lip, but in hay distributed on the way in nose-bags it has not the same chance, and it is under such conditions that it may produce serious colic by irritation of the large intestine by essence of mustard.

Caryophyllaceæ.

The Caryophyllaceæ are plants almost all of which contain saponins, substances which owe their name to having the property of making water lather like soap. The majority of saponins are cellular poisons, hæmolytics, which differ from toxins in that they resist heat and that they do not give place to phenomena of immunisation. Many plants of the family Caryophyllaceæ are toxic; you know very well of accidents produced by corncockle, or githagism, so I will not dwell on this point. Caryophyllaceæ containing saponins are soap wort, corncockle, gyp-

sophylla, bois de Panama. Other plants, which are toxic are digitalis, cyclamen, red chickweed, sarsaparilla, bitter sweet, Paris horse-chestnut, arenaria (sandwort) and alsine tenuifolia, both of which are sialogogues, and lychnis flos-cuculi. But all the saponins are not toxic, some even acting on the glands may be useful: spurry, for example, which increases lacteal secretion, and polygala (milk wort). This action on the glands is still manifest on two field plants, *Arenaria serpylifolia* (thyme-leaved sandwort) and *Alsine tenuifolia* (fine-leaved sandwort), which cause animals to salivate copiously when they eat it—a collective accident which to people not initiated may cause suspicion of foot-and-mouth disease.

Leguminosae.

The Leguminosæ family, so rich in fodder plants of prime value, ought to be put in the first rank for the number of its toxic species. I will speak to you first of poisonings by trees or shrubs belonging to this family.

Cytisus.—The cytisus (*Cytisus laburnum*) is the plant type studied thoroughly by Cornevin, who has demonstrated the migrations of the active principle following different periods of vegetation. All the parts are toxic, but with seasonal variations. The active principle is an alkaloid (cytisine) poisonous to the nervous system. In the horse accidents are caused almost always by the bark, which is gnawed by animals tethered imprudently at the foot of the tree; about 15 grammes often suffices to produce fatal results. The symptoms generally evolve in three phases: a phase of excitement, with increased respiration, and sometimes roaring, the pupils dilated, the temperature low; a phase of coma with inco-ordination of movement; finally, a convulsive period with quick, strong pulse and irregular temperature. The ox is less sensible than the horse, and shows muscular resolution and inco-ordination of movement. Cytisine is also found in other Papilionacæ, notably sophora.

Robinia.—The robinia false acacia (*Robinia pseudo-acacia*) is also toxic; its bark chewed by the horse may cause accidents due to robine, which belongs to the group of toxalbumins already noticed under ricin. The fresh bark contains 1 per cent. of the principle, and the toxic dose is 1.5 milligram per kilo. for the horse (2 centigrams, ox); it is therefore a very active plant. When indicating to you intoxications due to trees, I mention the following facts: A poplar tree blown down during winter into a meadow; some heifers chewed the bark and the little branches of the tree; five beasts were found dead in its proximity. Another instance: fourteen young colts, eight to ten months old, at the end of winter were put into a field where a number of poplars, carriers of mistletoe, had been beaten down by the storm. Suddenly a colt was taken seriously ill, showing the following symptoms: uncertain gait, frequent micturition, loss of sensibility and vision; he died after five days in fits of vertigo. Another colt fell suddenly ill, so seriously that he died in a few hours after showing the following symptoms: head depressed, ears pendant, gait uncertain, respirations panting, copious sweating, insensibility, and almost complete paralysis of the hindquarters.

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The owner, having noticed the colts eating clusters of mistletoe adherent to the branches of the poplars, blamed this plant, and brought in his animals, and the accidents ceased. I recall an observation recorded in England where young cattle and colts were poisoned after grazing on branches of *Populus balsamifera*.

The synthesis of these three observations makes me draw attention to the dangers that poplars fallen in the fields may present ; be it by their own toxicity or by the action of mistletoe berries, of which they are often carriers, they can in winter or early spring occasion serious accidents to stock.

Brooms.—By the name of genestade accidents due to grazing different kinds of brooms are known : *Spartium junceum*, or Spanish broom, different species of *Genista*, and, above all, *Sarothamnus scoparius* or balas broom ; this last species contains an alkaloid, a cardiac poison, *sparteine*, and also a little cytisine. The majority of brooms have purgative properties only, and it is by too exclusive or prolonged taking that they cause grave irritation of the digestive tube.

Lupins.—Feeding with the seeds or different species of lupin plants causes several types of intoxication.

Lupinosis is chiefly observed in the sheep. In the acute form (lupinosis) the malady appears suddenly, being characterised by fever with all its attendant train of symptoms, then the temperature falls progressively until death ensues. Nasal hæmorrhages are seen, marked icterus, constipation, then bloody diarrhœa. Emaciation is rapid, cachexia and death follow. In the chronic form (lupinism) all these symptoms are less evident, and all are not constant. At the autopsy lesions are chiefly evident on the liver, where an acute hepatitis with rapid atrophy may be seen.

One finds in lupins two kinds of superposed alkaloids : sparteine, which is very toxic, but rapidly eliminated by the urine ; and at the same time a more or less complex of different alkaloids designated for some years under the name of " lupinotoxin " or " ictrogene." In reality this mixture comprises, according to the researches of Couch, a *D. lupanine*, more toxic than even sparteine, *Lupinine spathulatine* (only in the species of North America), finally *hydroxylupanine*, ten times less toxic than *D. lupanine*. *D. lupanine* is found in *Lupinus albus*, *L. augustifolius* and *L. polyphyllus* ; lupinine is associated with sparteine in *Lupinus luteus*. Lupinosis is rare in France because lupins are very seldom used except as green pasture.

Vetches.—Lathyrism, produced by different species of vetches or *Lathyrus*, is one of the oldest known vegetal intoxications. Accidents of lathyrism occur in the horse from seeds substituted for oats ; the species involved here is chiefly *Lathyrus sativus*.

It produces chronic characteristic accidents well known, which hardly need mention. The noxious accident appears after a long period of latency of several weeks—up to two months. The outstanding symptom is acute roaring, which shows itself not only at work, but also in different circumstances during feeding, watering, and even at absolute rest. It soon produces alarming symptoms of

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asphyxia which pass on to death. The mortality is quite high, and it is a grave fault, from the precise information we possess on this subject, to wish to continue giving these harmful peas to horses.

The ox is chiefly poisoned by green forage. Certain species of lathyrus, such as *L. sativus*, only present toxicity at the time of flowering and formation of the pod; but all the other species—*L. cicera, L. clymenum, L. odoratus*—are toxic at any time in their vegetation. Accidents chiefly occur from these peas being fradulently incorporated in artificial feeding stuffs. In cattle a progressive paralysis is chiefly seen, roaring occurs less frequently. Parallel accidents occur in North America from a kind of wild pea, *Ervum ervilia, Crotallaria sagittalis* (crotalism). A glucoside generator of prussic acid occurs in several varieties of *Vicia sativa* and in *V. canadensis, V. hirsuta, V. augustifolia.*

(To be continued.)

The Number of Veterinary Graduates in U.S.A. and Canada.—*Journal of American Veterinary Association*, June, 1935.

VETERINARY colleges in the United States and Canada this year will graduate a larger number of veterinarians than for any year since 1920, when the total number of graduates reached 375. This number may be equalled at the 1935 commencements, but it is doubtful. The colleges reported 380 seniors last fall, but all of these are not expected to be graduated this year, for one reason or another. The total number of graduates for 1934 was 299, the largest number in fourteen years. The average number of graduates for the ten years from 1925 to 1934, inclusive, was 187 per year. Next year and in 1937 the number of graduates will be less than for 1935, based on the number of students in the junior and sophomore classes this year. Colleges going to the five-year curriculum account for the expected drop in the number of graduates for 1936 and 1937. We can expect the number of graduates to increase again in 1938 if we take into account the 572 freshmen enrolled this year. In studying these figures keep in mind the estimate made by the A.V.M.A. Committee on Education, several years ago, that 296 new veterinarians would be required each year until 1980 to maintain the numerical strength of the veterinary profession at its 1930 level. Another factor that should not be overlooked is this: all figures on graduates include the two Canadian colleges, while the calculations on veterinarians needed do not include Canada.

Women Veterinary Students at Ohio State University.—*Journal of the American Veterinary Association*, June, 1935.

UNIQUE among organisations of veterinary students is the club established at Ohio State University by the women students in the College of Veterinary Medicine. This organisation, which was completed at a dinner meeting on May 1st, 1935, has been named the Brumley Club, in honour of Dean O. V. Brumley, who has been active in promoting the cause of women students in veterinary

medicine. Dr. Brumley was made an honorary member of the club, and Miss Grace Zorbaugh, Associate Dean of Women, was elected faculty adviser. Officers serving the new group are: President, Miss Ernestine Kelly, of Baltimore, Md.; Secretary-Treasurer, Mrs. Ida Mae Dodge, of Butte, Mont. The roster of charter members includes the following names, in addition to the officers: Misses Helen Zimmermann, Betsy Jane Richey, Elizabeth Newkirk and Lois Hopkins, and Mrs. Barbara Peters. Future meetings of the club will be dinner meetings, and will be held the first Wednesday of each month beginning with the next college year.

Kansas Declared Tuberculosis-Free State.—*Journal of the American Veterinary Association*, June, 1935.

MAY 1st, 1935, was a memorable day for Kansas. On that date the State was recognised officially by the U.S. Department of Agriculture as the nineteenth State practically free of bovine tuberculosis and placed on the list of modified accredited areas along with eighteen other States: North Carolina, Maine, Michigan, Indiana, Wisconsin, Ohio, Idaho, North Dakota, Nevada, New Hampshire, Utah, Kentucky, West Virginia, Washington, Illinois, Oregon, Virginia and Minnesota. The testing of cattle for tuberculosis has been speeded up in Kansas during recent months through the use of emergency funds provided by the Jones-Connally Act. This work resulted in the rapid completion of testing in thirty-one counties, which enabled the State to achieve its tuberculosis-free status. Officials who directed the work have commented on the splendid spirit of co-operation on the part of cattle-owners throughout the State. The campaign to eradicate bovine tuberculosis is progressing rapidly in other States, and during March, 1935, 2,690,074 cattle in approximately 250,000 herds were tested —more than in any previous month in the history of the work. Two-thirds of all the counties in the United States are now practically free of bovine tuberculosis, according to a map recently issued by the U.S. Department of Agriculture. Of the 3,071 counties in the United States, 2,035 were accredited as of March 1st, 1935. In several States only a few non-accredited counties stand between them and accreditation.

Reviews

Annual Report of the Edinburgh Veterinary Department.—Professor GOFTON.

A FEW years ago reports of veterinary departments were unknown; now they are becoming common, and some of them are both interesting and educative. At present the work of veterinary public health officers is not uniformly reported in that some officers only deal with contagious diseases, milk and dairies, and tuberculosis; others include meat inspection; some include all these; also markets, the care of horses, farm animals and port inspection. Some of the reports are included in that of the Medical Officer of Health, and little if any credit is given to the veterinary officer; on the contrary, the report may be arranged to appear as if the medical officer had

been directly responsible for the actions of the veterinarian; fortunately, such cases are few. In general, medical officers, while including the veterinarian's work in their report, give full credit to the officer who performed the duties. In some cities and counties the veterinary officer acts directly under a committee of his Council, to whom he is responsible, and issues his annual report direct to his committee or Council.

It is in this category we find Professor Gofton, and his report, just issued for the year 1934, gives proof of the wisdom of his Council in giving him so responsible a position. We hope the days are not far distant when similar reports will be issued from all cities and counties, and veterinarians be accorded the positions which their training entitles them to hold. Professor Gofton's report should be read and studied by all veterinarians engaged, or who intend to engage, in public health work; it forms a useful guide as to the variety of the duties devolving on the public health veterinary officer. It is important to call attention to the fact that practically all the work could only be done efficiently by an officer trained in veterinary science. Edinburgh, which was one of the first British cities to engage full-time veterinary meat inspectors, is still in the front and showing an example in public health progress in their veterinary department. To the Council of that city we offer our congratulations. The report may be summarised as follows, *viz.*:

Milk and Dairies (Scotland) Act, 1914.—The Act requires inspection of cattle in registered dairies at least once per year. In actual practice they were examined at intervals of one month; as a result, 131 diseased cows were detected and removed permanently or temporarily from the milking herds, and the milk withdrawn from sale, it being fed to animals after boiling, or destroyed.

Tuberculosis.—Twelve cows were found to be tuberculous: five in the udder, seven with other clinical symptoms. The incidence of tuberculosis in post-mortem statistics in the abattoirs shows an increase, being 54.35 per cent., compared with 43.33 per cent. in the five previous years. In 8.90 per cent. the disease was advanced, 16.84 per cent. localised to organs and parts of the carcases, and in 74.26 per cent. the lesions were confined to the organs. Tuberculosis was responsible economically for the destruction of 85.8 per cent. by weight of all classes of beef during the year.

Cow-sheds.—Registered premises, 70; cow-sheds on premises, 117; average number of cows, 1,939.

Milk (Special Designations) Order (Scotland), 1930.—Producers licences, Grade A, 1, certified, 1, 2; the certified herd consisted of cows, 36; milk produced in gallons, 24,000; tuberculin test applied twice, reactors *nil*.

Further progress was made in building up a dairy herd for milk supply, and it is anticipated that in 1935 all milk required by the hospitals will be produced on the farm. The stock was tuberculin tested twice during the year—no reactors. Professor Gofton gives Mr. Jowett full credit for bacteriological work, which consisted of examining:

	Samples
Certified milk	64
Grade A (T.T.)...	45
Grade A	21
Pasteurised	37
Sterilised	2
Milk for hospitals	6
	175

Results.—Certified milk unsatisfactory, 11; Grade A milk unsatisfactory, 12; pasteurised milk unsatisfactory, 7; pasteurised milk, coliform organisms in one tenth c.c., 16.

Individual Cows, Milk Tests.—Presence of tubercle bacilli found by microscope, 4; presence of tubercle bacilli found by biological test, 1; presence of streptococci, staphylococci, *C. pyogenes*, 50.

Bulk Samples Milk.—Affected with tubercle bacilli, 5.42 per cent. Fourteen positive results referred to local authorities resulted in six cows affected in the udders being discovered and slaughtered. The other affected animals had apparently been removed before tests were concluded.

Biological Test of Graded Milk.—Grade A (T.T.) tests), 10; Grade A, positive, *nil*; Grade A, positive, 1*

Miscellaneous Materials.—These totalled 745 samples, consisting of anthrax, *Br. abortus*, B.W.D., parasites, tuberculosis, pyogenic infections, actinobacillosis, neoplasms, colibacillosis, *etc.*

Vaccines.—These were prepared and issued for use in farmstock.

Meat and Other Food Inspection.—Ante-mortem inspection at markets. Animals rejected: cattle, 27; sheep, 2; pigs, 5.

	Exposed for sale.	Slaughtered
Cattle	48,725	33,878
Calves	6,025	4,135
Sheep	289,307	156,212
Swine	19,453	18,355
	363,510	212,580

Carcases and Offal Destroyed.—In abattoirs: carcases, 154.01 tons; offals, 105.22 tons.

Percentage incidence of tuberculosis in all animals slaughtered: Oxen, 5.93; bulls, 29.50; cows, 54.35; heifers, 9.47; swine, 5.07; calves, 1.67.

Shop Inspection.—Butchers notify carcases received from outside city boundaries; these consisted of 1,641 carcases and 70 parts, of which eleven carcases and five heads were destroyed.

Port Inspection.—Consignments of food from many countries were examined, resulting in 199,943 lb. being destroyed.

Diseases of Animals Act.—A résumé is given of actions taken under this heading. No case of foot-and-mouth disease has occurred in the city since 1922. As showing the value of market inspection, 19 animals were dealt with under the Tuberculosis Order of 1925, of which seven were detected in the live stock markets.

The report is a valuable contribution to veterinary public health administration.

* Cow traced and slaughtered.

News

THE MILK MARKETING BOARD.

SINCE the inception of the scheme it has been the business of the N.F.U. to " study the working of the scheme " on behalf of some 120,000 farmers. The view of the Union is that, allowing for administrative difficulties, which were bound to arise in a scheme of so gigantic a character, the scheme has, on the whole, worked satisfactorily, and great credit must be given to the principal

officials, Mr. Foster not least among them, for what has been achieved. The scheme came into being on the understanding that complementary control of imports, a fundamental necessity, would be forthcoming. It would be better to study the difficulties which have arisen from the lack of fulfilment of that understanding rather than to echo the criticisms of a small and ill-informed section of the Press.—*National Farmers' Union News Sheet.*

THE MILK-IN-SCHOOLS SCHEME.

Replying to a recent question in the House of Commons, Mr. Elliot said that up to the end of February, 1935, 10,159,000 gallons of milk had been consumed in the milk-in-schools scheme. The total loss incurred by the sale of this gallonage at 1s. per gallon was £448,000, of which one-half was borne by the Exchequer and one-half by the Milk Marketing Board. It was pointed out by the Minister that this figure rested on the supposition that the milk consumed by the children would otherwise have fetched the liquid price, but had the scheme not been in operation some of the sales would have gone into low-price category for manufacture for cheese and butter.—*National Farmers' Union News Sheet.*

FREE VETERINARY INSPECTIONS AFTER "GRADE A" QUALIFICATION.

The General Purposes Committee of the Buckinghamshire County Council recommended: (*a*) That the applicants for "Grade A" licences be required to bear (as at present) the cost of the initial certificate of a veterinary surgeon as to the health of his cattle, including certificates relating to additions to herds and certificates of the bacteriological examinations of the milk, being the requirements to be fulfilled before the issue of the licence. (*b*) That, subject to the payment by the applicant of the annual licence fee of £1 1s., the quarterly veterinary inspections and the periodical bacteriological tests of the milk (two of the conditions under which the licence is to be maintained) be made by the County Council free of charge. (*c*) That the Council also bear the cost of the final bacteriological examination of the sample of milk on which the issue of the licence depends, where in the opinion of the Chief Inspector such a "check" sample is necessary.

WORLD PRODUCTION AND TRADE IN MEAT.

A Report which has just been issued by the Imperial Economic Committee on Meat gives a valuable collection of statistics on production and the world trade in livestock and meat. The information should be of service in consideration of one of the most urgent agricultural problems in this country—the raising of the beef industry from the unprecedented depression into which it has fallen. The statistics show fully the relative importance of the chief exporting countries, Argentina, Australia, Uruguay and New Zealand, and to what a great extent these exports find their way to this country. If beef production in the principal

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producing countries decreased between 1925 and 1931, it has since shown a substantial recovery, especially in Australia, whose exports in 1934 were considerably higher than in the peak year of 1928, according to the report. Production of mutton and lamb has expanded throughout this period. Pig meat production has also increased, particularly in Europe, but by 1933 the output was beginning to decline, and a further fall probably occurred in 1934. The Report, which costs 1*s*., and is obtainable from H.M. Stationery Office or any bookseller, gives plenty of evidence of the keenly competitive conditions under which the British farmer is working.—*National Farmers' Union News Sheet.*

MEAT CONSUMPTION IN GREAT BRITAIN.

Perhaps too much emphasis has been placed in the past few years on the decline of beef consumption in Great Britain. From the figures given in the new Report of the Imperial Economic Committee on Meat, it is evident that the decline is not of such proportions as to account to any great extent for the beef producer's difficulties, and there is indeed evidence that beef is coming into favour again. In Great Britain between 1925 and 1932, beef and veal consumption is estimated to have declined from 70½ to 62½ lb. per head, and pig meat and mutton to have risen respectively from 43 to 51 lb. and from 26 to 32 lb. Nevertheless, beef and veal consumption in 1933 increased to 64½ lb. per head, and mutton and lamb remained about the same at 32½ lb.; there is little doubt that beef consumption again increased in 1934.—*National Farmers' Union News Sheet.*

Correspondence

A CHURCH SERVICE.

To the Editor of THE VETERINARY JOURNAL

SIR,—On Sunday, July 7th, by a mere chance, I happened to see a procession, headed by a band, leave Hyde Park Gate, following a man with a banner. The procession was composed of a number of males clad in breeches and gaiters, looking essentially like a body of grooms, and a few women and children *en route* for a church, where a service had been arranged.

The sermon was preached by a clergyman—I presume a member of the Church of England—and the preacher enlarged upon the good work the Society was stated to be doing, and became eloquent when he said, "We thank God for the creation of this Society, for its inspiration, and for its Founder. Theirs is a record few have equalled. . . . When I tell you the growth from the treatment of a few cats has extended to 2750 *cases* a day, with a day and night service—freely and willingly given—you will understand what a long-felt want this Society supplies. . . . Just think

of it ! In its good work every year, 5 tons of chloroform, one ton of cotton wool, 20,000 bandages are used—not to speak of 10,000,000 bottles of medicine dispensed." The preacher proceeded : " And what is the motive behind all this that drives those responsible onward ?—service to the dumb creation and good work *skilfully* done ; and the fact that this day you come to God's house to give God thanks proves your sincerity in your great work. . . . Your patients are God's patients and so are we. . . . In your great work you have at heart the love of God. . . . And you have the support of the Archbishop of Canterbury too, who says, ' My blessings on this good work.' . . . It would be easy for this Society to play upon the emotions of the people, but your strength is in the fact that everywhere you *reveal restraint* ; *preferring your good work* to speak for itself."

Will it be believed that these words from a clergyman of the Church of England, refer to a Society which, however good its intentions may be, has consistently refused to employ, for the purpose of diagnosing disease and prescribing treatment for the animals brought to them, any person having a recognised qualification in animal medicine ? Yet such is the fact. And I wondered what this divine would say if I suggested that a butcher or a groom should attend his child with diphtheria instead of a medical man. Surely the Church does not know what it is doing. It cannot know the real facts ; it does not realise that it is giving its blessing to people who have never taken the trouble to secure that training which would qualify them for the work they undertake.

After hearing this service I went to the Royal Veterinary College, now going through a glorious transition, and what did I see ? The operating theatres, the medical and scientific departments, the pathological, histological and bacteriological departments; not to speak of the many research departments, where the most advanced discoveries in the medical and surgical world are demonstrated and confirmed ; and all these acted as a tonic where the previous service served as a depressant. And I wondered why a Society which professes to care for suffering animals and asks for public support and the blessing of the Church should prefer to employ unqualified people, when they could secure the services of men and women who have passed through the course of training for the State-recognised Diploma of the Royal College of Veterinary Surgeons—which makes them the only persons fitted by knowledge and skill to practise Veterinary Medicine and Surgery in this country.—I am Sir, yours faithfully,

WM. MORGAN SCOTT.

Bridgwater.

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